

### REMARKS

The Applicants and their representative thank the Examiner for granting the interview, and for his careful and respectful consideration of the proposed amendments.

### INTERVIEW SUMMARY

The Applicants' representative called the Examiner to see if an agreement could be reached regarding an amendment to claims 1 and 34. The Applicants' representative explained that Prasad and Pirolli et al. use rules for determining the categorization of documents and the Applicants did not. The Applicants' representative explained that he would like to capture an aspect associated with this difference in an amendment to a claim. Consequently, the Applicants' representative proposed amending the claim to recite that the documents were categorized as part of one calculation (rather than by a one-by-one comparison of a document to a rule, for example). The Applicants' representative explained that the specification discloses extremizing an objective function that has confidence variables that describe how closely the corresponding document matches a category. Based on this discussion, the Applicants' representative and the Examiner together worked out and agreed to the language of

and by one calculation of a function referencing attributes associated with each of said plurality of documents

as a proposed amendment to claim 1 to be added after the last word of the claim.

However, the Examiner stated that although he felt that most likely this amendment would place the Application in condition for allowance, he did not make any commitment, and stated that he needed to consult his supervisor.

The Applicants' representative asked if it would be alright if he also included three dependent claims elaborating on different terms of the new claim language.

Specifically, the Applicants' representative explained that he wanted to add claims specifying that the function is an objective function, the references to the attributes associated with the documents are the confidence scores, and that the references to the attributes associated with the documents are the indices of the similarity matrix.

Although the specific wording was not discussed, the Examiner did not see any problem with these proposed claims, but asked that the amendment include an explanation regarding the support in the specification for the new claims. The Examiner also did not want to make a commitment regarding the entry of the new claims into the application.

#### BASIS FOR NEW CLAIMS

The optimization of the objective function is generally discussed starting at page 20, line 6, and ending on page 29, line 3. Some transformations used to perform the relaxation process are given by equations II-5, II-7, and II-8, and the equation of page 28, lines 14-16. Page 23, lines 5-8, explain that

step 306 takes documents in the training set of each category, essentially finds similar documents to them, and classifies the similar documents into the category. An embodiment is described further in the section below labeled "TRAINING PROCESS".

In other words, the "TRAINING PROCESS" describes how to take the training documents and use them to classify similar documents. The training process involves optimizing (e.g., maximizing) an objective function  $P(x)$ . Examples of the objective function are given in equations II-1 and II-9, and the equation of page 21, line 21. The  $i$ 's and  $j$ 's in these equations (and in the similarity matrix  $W_{ij}$ ) are indices that correspond to documents (see page 22, lines 9-11, for example). The similarity matrix  $W_{ij}$  represents the similarity between documents, and is formed from feature vectors  $S(i,k)$  (see the equation on page 13, line 23, for example). The feature vectors are based on various

matrices used to characterize the attributes of the documents (page 13, lines 9-13 give an example of a feature vector).

Thus, regarding claims 1, 34, and 38, the “one calculation” (recited in claims 1 and 34) is supported by the optimization (recited in the specification and in claim 38) performed in the training process, which calculates a maximum or optimum value for the objective function, and the “function” of claims 1 and 34 is the objective function as specified in claim 38. Specifically, page 23, lines 5-8, cited above, supports the notion of an optimization (the “one calculation”) being used for the categorization. Regarding claim 38, the similarity matrix  $W_{ij}$  is included in the objective function in equations II-1 and II-9, and the equation of page 21, line 21.

Regarding claim 39, the confidence scores  $x_i$  or  $x_{i\beta}$  are within the breadth of the term “attributes,” and they reference the document they are used to rank. Thus, the confidence scores are attributes associated with documents that are referenced by the objective equation (the “function”) via their presence in the equation.

Similarly regarding claim 40, in addition to the indices of the similarity matrix  $W_{ij}$  referring to documents, each element of the matrix  $W_{ij}$  is derived via the feature vectors from features or “attributes” of the document, and therefore the objective function can be said to be “referencing attributes” associated the documents to which indices  $ij$  refer.

#### THE CLAIMS PRIOR TO AMENDMENT

Although the Applicants have agreed to the present amended claim set to expedite the prosecution, nonetheless, the Applicants reserve the right to continue prosecuting the prior claim set in another application (or this application should the Examiner not agree to allow the amended claim set). Since it is expected that the Examiner will most likely

allow the application, a full rebuttal of his arguments is not presented at this time.

However, the Applicants disagree with the Examiner's rejections. For example, the Applicants disagree with proposed modification of the Pirolli et al. in view of Pasad. Pirolli et al. is addressing the problem of the "sluggishness" associated with prior art searching techniques (see column 1, lines 25-28). Consequently, the reason Pirolli et al. like the use of rules is

Based on category membership, a user may *quickly* predict the functionality of an element. For instance, in the everyday world, identifying something as a "chair" enables the quick prediction that an object can be sat on... (emphasis added, column 8, lines 53-55).

In other words, an important point being made here is that a reference about a chair may not mention anything about sitting, but by using rules one can nonetheless quickly make an association between the chair and sitting. Similarly, using rules one can make an association between a document and how to categorize it, even though the document may not explicitly mention anything about many of its attributes. However, one of ordinary skill in the art would expect that such an advantage would be lost were one to use a bunch of training document to establish the rules because the rules established from training are unlikely to include concepts that are not explicitly in the training documents and because using training documents increases the time to establish the rule. Therefore, one of ordinary skill in the art would be inclined not slow down the categorizing process by using the more limited rules derived from training documents of Pasad. In this sense the Pasad's use of the training documents runs contrary to at least one of the principals upon which Pirolli et al. are relying, which is not permitted in a rejection under 35 USC §103, (see MPEP 2143.01, p. 2100-127, the right column, entitled, "THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE," which cites *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)).

Further, Pasad is attempting to determine which source to retrieve documents from, while Pirolli et al. is attempting to categorize documents found. In this sense these two documents may not even be related art. Cf. MPEP2141.01(a) p.2100-118, which cites *In re Clay*, 966 F.2d 656, 23 USPQ2d 1058 (Fed. Cir. 1992) and emphasizes the difference between “storage” and “extraction” as significant in determining a reference to be non-analogous (the difference between storage and extraction is conceptually very similar to the difference between categorizing search results and identifying sources where to search).

Deciding which source to retrieve documents from is analogous to deciding whether to use Lexis’, INSPEC’s, or Dialog’s databases to find a document. The source where a document is found is not necessarily a useful category for classifying search results. The difference between these sources is not ordinarily associated with differences between two categories in which documents found are likely to be classified into.

Further, the claims require that the training documents be already categorized into the categories. In Pasad, it would appear that the training documents happen to already be in the sources before the search began with no effort on the part the developer to categorize the documents. While the claims do not necessarily require effort or a pre-categorization step on the part of a developer, the effort of pre-classification typically required in finding training documents for categorizing (not necessary when deciding on sources) seemingly would have deterred one of ordinary skill from using training documents when categorizing, and would have caused one of ordinary skill in the art to think of these two activities as unrelated distinct processes. Were one of ordinary skill to have combined Pasad and Pirolli et al., it would have been to use Pasad’s training

documents to decide on which source to take the documents from and not in categorizing and ranking the documents later found. Thus, it would seem unlikely that one of ordinary skill in the art would look to a reference on where to search, to solve a problem about how to categorize search results.

For the reasons set forth above, the Applicants respectfully submit that all pending claims are patentable over the art of record, including the art cited but not applied. Accordingly, allowance of all claims is hereby respectfully solicited.

Respectfully submitted,

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